

## HIGH REPETITION RATE PASSIVELY Q-SWITCHED LASER FOR BLUE LASER BASED ON INTERACTIONS IN FIBER

### ABSTRACT OF THE DISCLOSURE

5 A laser apparatus is disclosed. The apparatus includes a Neodymium-doped lasing material having first and second surfaces and a passive Q-switch optically coupled to the second surface. The first-surface is substantially transparent to a pump radiation and substantially reflective to laser radiation generated by an interaction between the pump radiation and the Neodymium-doped lasing material. The laser radiation is characterized by a vacuum  
10 wavelength corresponding to an atomic transition from the  ${}^4F_{3/2}$  level to the  ${}^4I_{9/2}$  level of Neodymium in the lasing material. The second surface transmits at least a portion of the laser radiation. The lasing material and Q-switch are configured to produce pulses of the laser radiation characterized by a pulse length of greater than zero and less than about 1.5 nanoseconds and a pulse repetition rate greater than about 100 kHz. A PQSL laser, an  
15 apparatus for generating blue light and a display system based on the laser apparatus are also disclosed.